

CLAIMS

1. A composition comprising as an active ingredient
retinoic acid nanoparticles comprising micelles of retinoic acid
5 coated with an inorganic salt of polyvalent metal and having an
average particle size of 5 to 300 nm.

2. The composition according to claim 1, wherein a coating
of the polyvalent metal inorganic salt of the retinoic acid
10 nanoparticles to serve as the active ingredient is calcium carbonate,
zinc carbonate, or calcium phosphate.

3. The composition according to claim 1 or 2, wherein the
retinoic acid nanoparticles to serve as the active ingredient is
15 obtained by:

dispersing retinoic acid dissolved in a lower alcohol in an
aqueous alkali solution;

adding a nonionic surfactant to the dispersion to form a mixed
micelle;

20 adding to the micelle a halide or acetate of divalent metal
along with a carbonate or phosphate of alkali metal so that a molar
ratio of the former to the latter is 1:0 to 1:1.0, thereby
depositing a coating of the inorganic salt of the polyvalent metal
on a surface of the micelle; and

25 adjusting an average particle size of the resulting
nanoparticles to 5 to 300 nm.

4. The composition according to claim 1, 2, or 3, wherein
the active ingredient is retinoic acid nanoparticles having an
30 average particle size of 5 to 300 nm and coated with calcium
carbonate.

5. The composition according to claim 1, 2, or 3, wherein the active ingredient is retinoic acid nanoparticles having an average particle size of 5 to 300 nm and coated with zinc carbonate.

5 6. The composition according to claim 1, 2, or 3, wherein the active ingredient is retinoic acid nanoparticles having an average particle size of 5 to 300 nm and coated with calcium phosphate.

10 7. The composition according to any of claims 1 to 6 for use as an oral preparation, a non-oral preparation, an external preparation, or a cosmetic.

15 8. The composition according to claim 7 being a sustained-release composition.

9. A sustained-release preparation containing as an active ingredient retinoic acid nanoparticles having an average particle size of 5 to 300 nm and coated with calcium carbonate.

20 10. An external preparation containing as an active ingredient retinoic acid nanoparticles having an average particle size of 5 to 300 nm and coated with calcium carbonate.

25 11. A cosmetic containing retinoic acid nanoparticles having an average particle size of 5 to 300 nm and coated with calcium carbonate.

30 12. A sustained-release preparation containing as an active ingredient retinoic acid nanoparticles having an average particle size of 5 to 300 nm and coated with zinc carbonate.

13. An external preparation containing as an active ingredient retinoic acid nanoparticles having an average particle size of 5 to 300 nm and coated with zinc carbonate.

5 14. A cosmetic containing retinoic acid nanoparticles having an average particle size of 5 to 300 nm and coated with zinc carbonate.

10 15. A sustained-release preparation containing as an active ingredient retinoic acid nanoparticles having an average particle size of 5 to 300 nm and coated with calcium phosphate.

15 16. An external preparation containing as an active ingredient retinoic acid nanoparticles having an average particle size of 5 to 300 nm and coated with calcium phosphate.

17. A cosmetic containing retinoic acid nanoparticles having an average particle size of 5 to 300 nm and coated with calcium phosphate.